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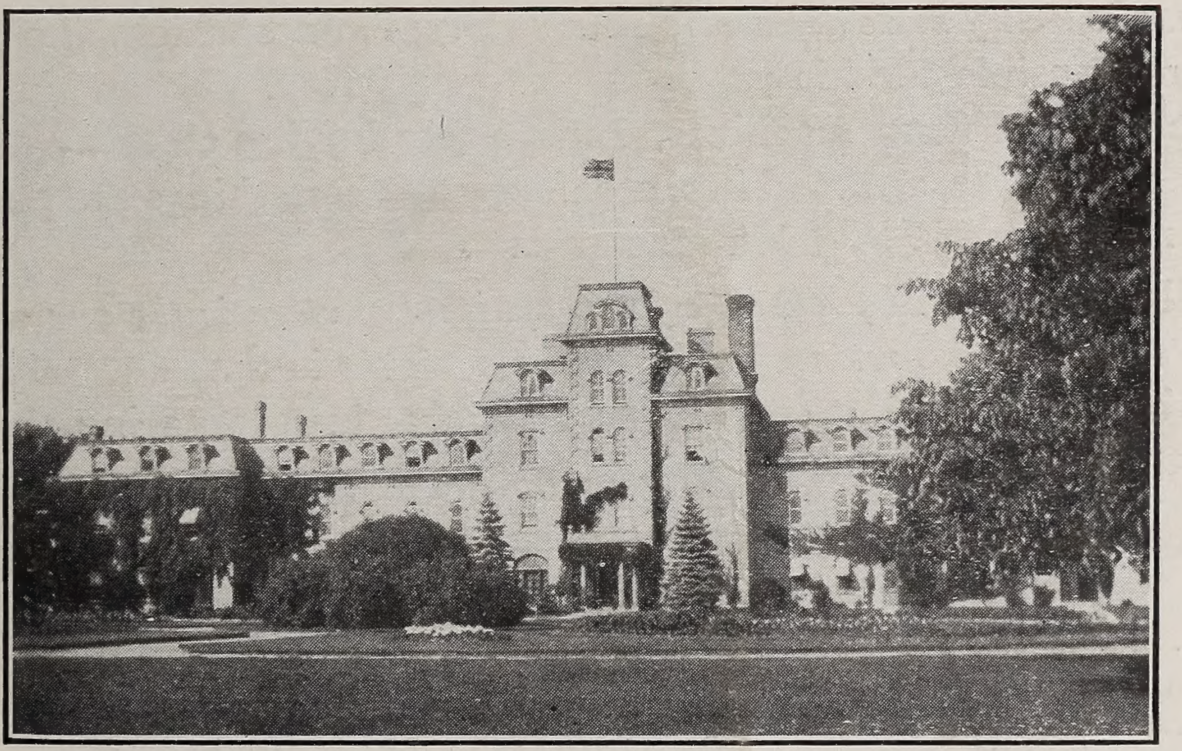

MAY, 1924

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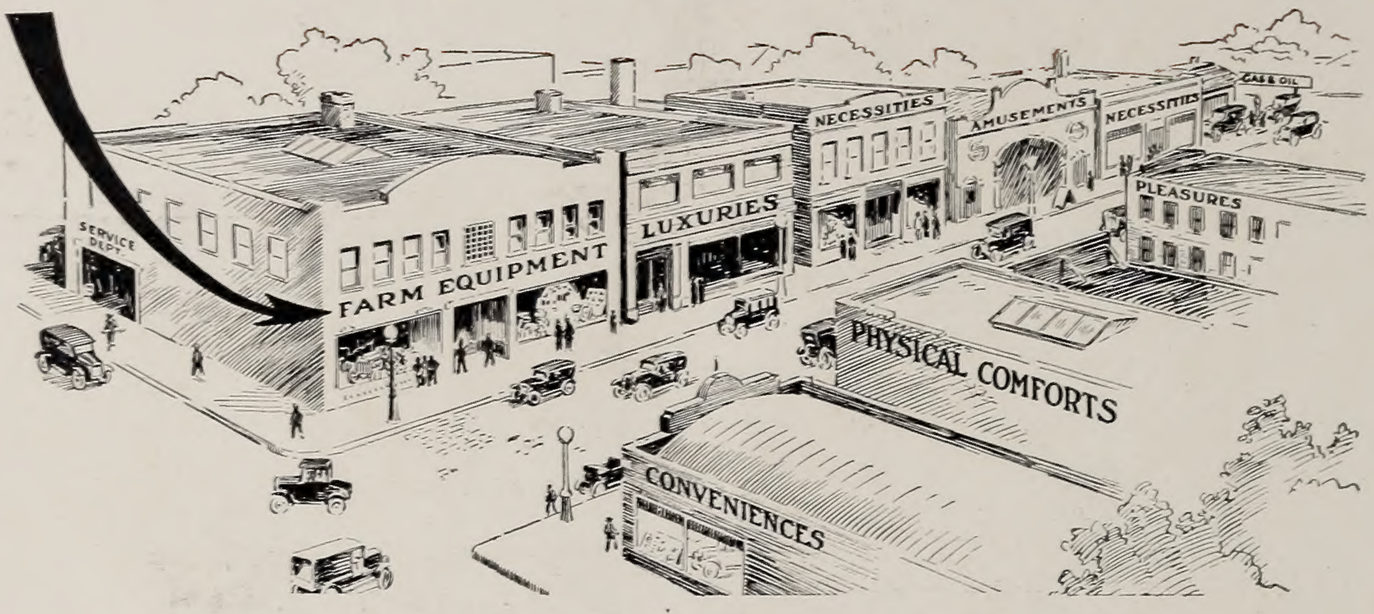

IN some of the stores of any town the farmer's dollar buys the necessities of life; in others it buys physical comforts; in still others it buys pleasures. *In the farm equipment store the farmer's dollar buys the means to make many more dollars.* It buys the machines which, like the land itself, is responsible for his progress and prosperity. When the farmer invests in modern farm machines, he is really buying clothing and education, electric lights, automobiles, etc., because these things are purchased with the money made by farm machines.

Of all the stores in town, *the farm equipment store is the one where the farmer gets the greatest return for his money.* This is true not only on the basis of the foregoing but it is found true also by comparing the prices paid by the farmer for different articles made of similar materials.

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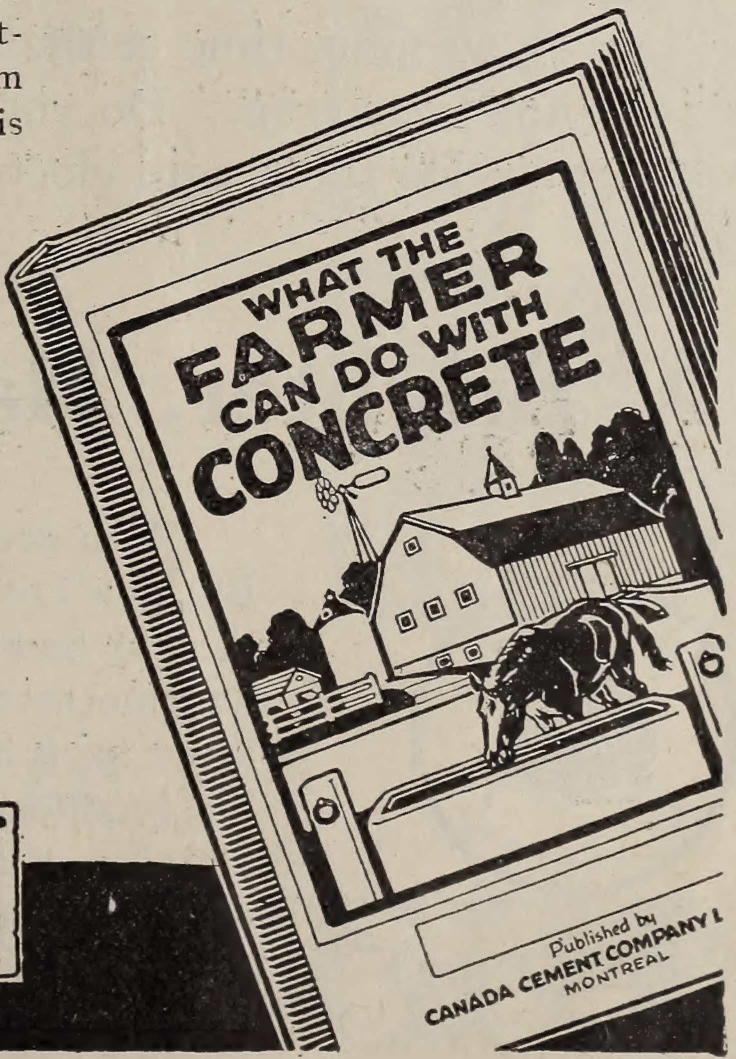

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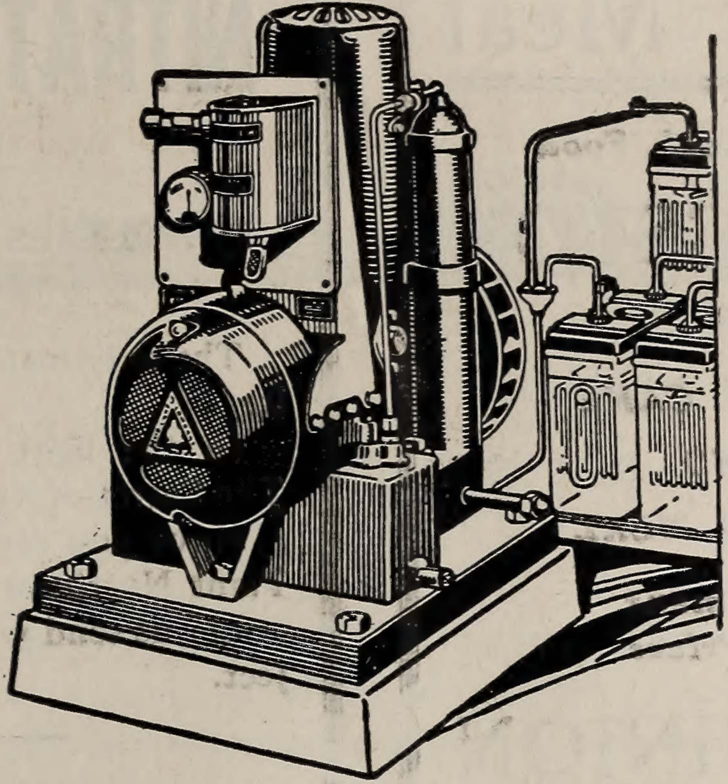

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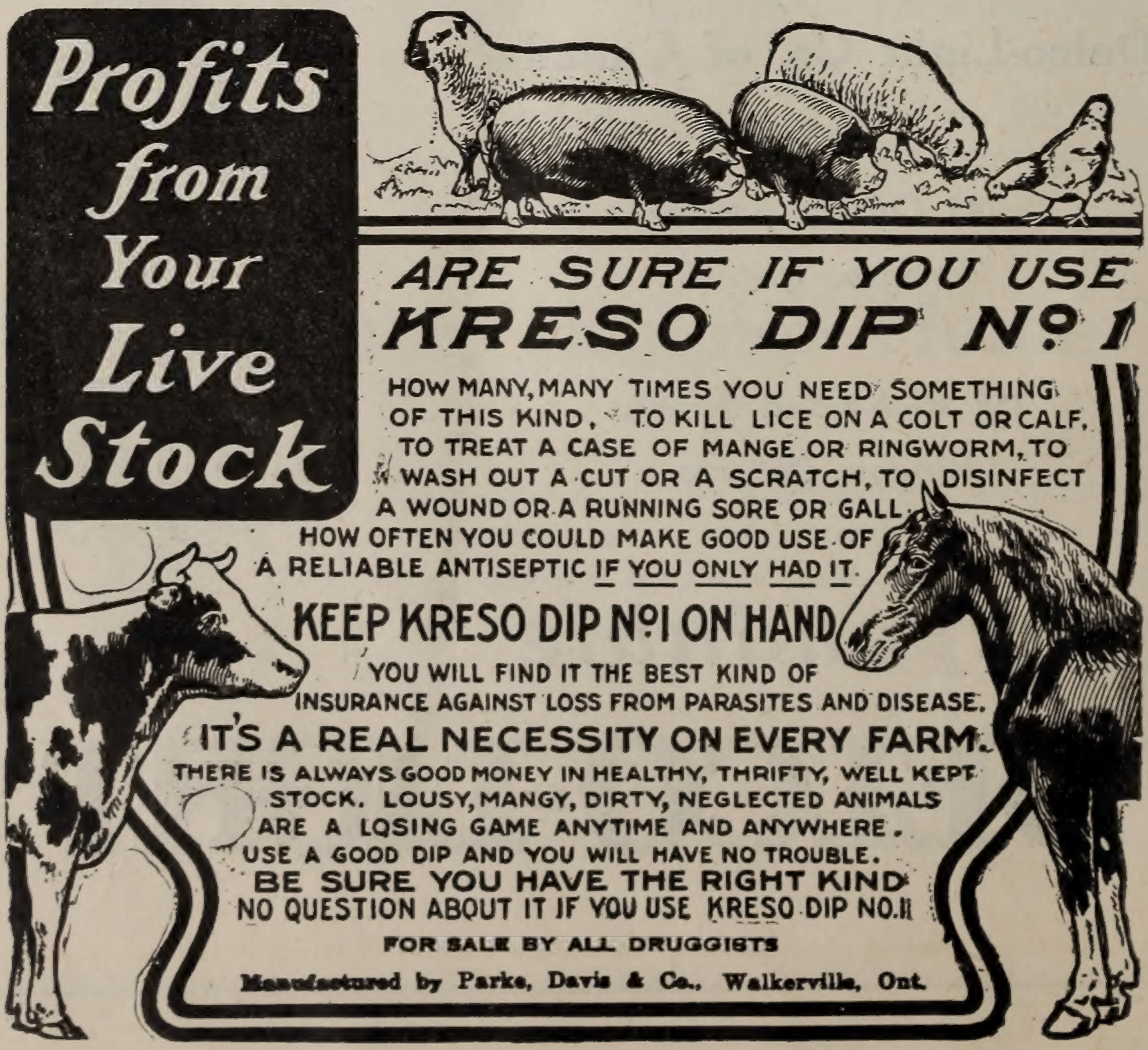

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The O. A. C. Review is published by the students of the Ontario Agricultural College Students' Publishing Association, every month in the year.

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May Garden

JOHN DRINKWATER.

A shower of green gems on my apple tree
  This first morning of May,
Has fallen out of the night, to be
  Herald of holiday—
Bright gems of green that, fall in there,
Seem fixed and glowing on the air.

Until a flutter of blackbird wings
  Shakes and makes the boughs alive,
And the gems are now no frozen things,
  But apple-green buds to thrive
On sap of my May garden, how well
The green September globes will tell.

Also my pear tree has its buds,
  But they are silver yellow,
Like Autumn meadows when the floods
  Are silver under willow;
And here shall long and shapely pears
Be gathered while the Autumn wears.

And there are sixty daffodils
  Beneath my wall, . . .
And jealousy it is that kills
  This world, when all
The Spring's behaviour here is spent
To make the world magnificent.

THE O. A. C. REVIEW

"THE PROFESSION WHICH I HAVE EMBRACED REQUIRES A KNOWLEDGE OF EVERYTHING"

VOL. XXXVI. GUELPH, ONT., MAY, 1924 No. 9

The Aims and Objects of the Poultry Course at the O.A.C.

By Prof. W. R. Graham

THE desire of the instructor is to teach the student to see, to think, and to act on what was seen and thought. The development of keen observation, the factors associated with the things observed, and their application to the subject in hand are the objectives.

It is essential that the student be impressed with the fact that the desire to learn is associated with personal effort. The personal effort is stimulated if we consider that one of the fundamentals of the world is growth.

A student should be assured that the business is a National asset, and that it is economically sound; that one can make a living and enjoy life.

The instructor's problem is to take the present successful practice and by dissection show the relationship of the various parts. In other words, he takes a successful plan and shows, piece by piece, why it is successful and where, in his opinion, there is room for improvement, and why the improvement is desirable.

The instructor must demonstrate a very thorough knowledge of the subject, but at the same time must illustrate from time to time what he does not know, and suggest the need of more knowledge and possibly the method of attack.

The general economic situation must be carefully considered. The farmer has many hours of work and very little actual cash. He may have plenty of feed, live stock, etc., but the actual cash is not so common. Careful consideration must be given to investments. Animals must be compared as to their ability to turn the farm crops into money, and every angle possible that may influence the cash return must be studied. The poultry business lends itself to demonstration of the value of planning your work and working plan.

It is easy to show what lack of system, neglect, and general indifference cost when studying winter egg production. The winter laying hen is an efficient paymaster, and every effort should be used to show the student the proper relationship of the personal factor and personal effort to the other factors involved.

Many farmers are not good boosters of their business. The general conversation is about the hard work, poor pay, lack of social life, etc., and everything that is not satisfactory. In every walk of life there are many unpleasant things; some are worse for certain people than the same troubles are for others of different likes and dislikes.

The idea of the instructor is to show the things of extreme interest in poultry on the farm. Here is where the various branches of science, such as breeding, feeding, disease, etc., are useful. It is easy to interest the student: it is easy to show how with the ordinary flock he may remain a student. The known and the unknown are all in these problems. The student's desire for knowledge should stimulate his interest in the study of his problems, and this in turn should compensate, to a considerable degree, for city entertainment, which is largely artificial.

The question is, are you so constituted that the wonders of nature, its plans, and man's feeble interpretation, are so interesting that they become the joys of life?

The student should leave college knowing the common sources of information and have some knowledge of the farming policy of the country. He should be interested in all agricultural matters and realize to the full that his education is but in its infancy, and that there is an interesting work for him, and that he must exert considerable well directed personal effort.

Building a Temporary Stage for Amateur Dramatics

By Morley J. Williams, '25

HOW often it is said in the smaller places that though they would so much like to put on plays, they cannot do so for want of a stage. This may seem to be an obstacle, but is it a serious one? In many communities strenuous objection is raised against presenting anything of other than sacred nature in the church. This is really fortunate as most churches are so built that it is more difficult to adapt them for plays than it would be to adapt a bare hall. In nearly every small town or village there can be found a large room, or hall, dance hall, maybe, large enough to accommodate any crowd a play would be likely to draw. The lack of a stage in such a room need not prohibit its use, provided there is sufficient head room to allow of a platform two or three feet high, being built as a stage. Twelve feet is probably the minimum room height in which it would be possible to put up a stage and a greater height would be much better.

The first thing to consider is the location in the hall and this is practically always controlled by the position of the hall exit. The stage is usually placed opposite, or at least where it will not block the door. It is very important to always keep exits clear, for some time there may be a fire or other accident which will cause a panic.

How large shall it be is the next question. If plenty of material and labor are available it may be made any size, but for practically all ordinary plays, twelve feet deep by fourteen feet wide will be found large enough. In proof of this the play "The Brown Mouse," with as many as twenty people on in one scene, has been successfully presented on a twelve by fourteen stage.

The materials required are simple and usually easily obtained. As supports for the floor, four one or two-inch boards or planks, twelve feet long are required. These are used edge up and must have feet of some sort attached, making them into trestles of the proper height for the platform. They are stood, equally spaced, with one end against the back wall, the other end projecting into the hall. On these the floor boards are laid. The floor material does not need to be fancy. Two layers of one-inch boards, fourteen feet long and eight to twelve inches wide, each, will answer perfectly. The joints should of course be lapped, and, if covered with a heavy carpet or rug, they will require almost no nails, a light strip of wood tacked on top at each end holding down any unruly pieces.

In order that the players may not have to come on the stage directly from steps, the back two and a half feet of floor should be extended about six feet on each side of the main platform. This will make entrances and exits all on level floor and boxes can be arranged at the end of these extensions as steps.

The actual working floor is now complete and the next problem is to frame it suitably. For this a variety of materials may be used. Lumber, beaver board, curtains, wagon covers, tent-flys, or in fact anything of considerable area and uniform color. A wall may be put up running from the front corners of the stage to the sides of the hall. It may meet the side walls at right angles or may run out at an angle, thus focusing attention on the stage. If the ceiling is so high that the stage curtain will not reach to it an arch will have to be built. For a small stage table tops such as are used for church or lawn socials will do very well. A fairly strong upright is put up at each end of the stage say four by four, or a two by eight. To each of these uprights a table top is secured near one of its ends and sloped upward over the stage to make the sides of an arch. Between these two a third is fastened horizontally, making the top of the arch. Very few nails need be used, three-eighth inch bolts would be better. If this structure seems wobbly twelve foot strips may be run from the top of the back wall.

To cut off the view from the house into the wings, three curtains must be hung at each side of the stage, one behind the other, and parallel to the front wall, their inner edges coming just to the edge of the platform. Any dark colored curtains two and a half or three feet wide and eight feet long will do. Hung in this way they effectually cut off the view from the house, but allow of an almost unobstructed view of the stage by those in the wings and allow of flooding the stage with light from the sides.

Across the top of the stage, to cut off the view upward and to simulate ceiling, three or four strips of thirty-inch goods may be hung vertically, each extending the full width of the stage. Lights may also be hung between these strips.

For a front curtain, nothing answers better than a tent fly, though almost any fabric will do. A drop curtain will usually be found much better than a draw, being quicker and more positive in action. It should be attached to the back of the arch so that when hanging a couple of inches of the bottom edge will rest on the floor. A one-inch by four-inch strip is attached to the bottom of the curtain to keep it straight and to give sufficient weight to bring it down. Along the top of the curtain six small pulleys are attached dividing the space evenly. At the side from which it is decided to operate the curtain, one large pulley is attached. Through this large pulley six heavy cords are passed, one to each of the small pulleys, then through the small pulleys and from them straight down to the curtain bottom strip, to which they are attached. It will be seen that by pulling on the six cords where they come together at the side of the stage the curtain may be raised In order that the curtain may come up evenly when the bottom strip is raised and not bag down below it, rings are attached to the back of the curtain about one foot apart vertically and through these the cords are run. These cause the curtain to be taken up evenly and produce a very attractive draped appearance. Loose cord loops tied through the curtain answer almost as well as rings. This arrangement will give a cheap, quick-acting curtain of good appearance.

In lighting, all sources of light must be shielded from the eyes of the audience. Formation of shadows is also to be avoided as a distorted shadow moving over the back of the stage is likely to give a decidedly grotesque effect. If electricity is not available, gasoline mantle lamps or lanterns placed in the wings and arranged with reflectors of white paper or tin, make a splendid substitute. Two at each side should be ample. It is well also to place two lanterns, six or eight feet in front of the curtain and a few feet apart, for front light. These should be so masked that most of the light is confined to the curtain area and so that no direct light shines back into the house.

This covers the essentials of preparing for a play. There will still be much work to be done in the way of decorating and making the whole presentable. This need not be elaborately done, but should be handled by someone with a hawk-like eye who will pick out every inharmonious detail. Before starting any of the work all the little incidentals should be assembled, pins, safety pins, nails, string, stove-pipe wire, hammers, scissors, plyers, saws, etc. For nearly every purpose for which string might be used, stove-pipe wire will be better, fastenings being made and unmade more quickly and being less noticeable.

Nearly everything used in building a stage such as is described can be borrowed and a similar stage was actually built by seven men in four hours. With a little thought and care it can be made very convenient and presentable so that a community must be badly off indeed that can not take a whirl at amateur dramatics.

The Gladiolus

By A. H. Tomlinson, Assoc. Professor of Horticulture, O. A. C.

ON this continent no flower has received so much attention and become so popular in such little time as the Gladiolus. It responds wonderfully! The Gladiolus may be called "everybody's" flower because it will develop under any condition where there are soil, moisture, light and air. No plant giving such beauty and pleasure needs so little space. The Gladiolus has no American ancestors. It has evolved from largely South African species although European also enters in. There are over 160 species, mostly South African, a few Asiatic and European. These vary in beauty, attractiveness and vigor. Some emit a perfume.

The following species were, according to authorities, first hybridized:

G. byzantinus	Mediterranean
G. cardinalis	South African
G. cruentis	South African
G. dracocephalus	South African
G. oppositiflora	South African
G. Papilio	South African
G. Purpurea-auratus	South African
G. psittacinus	South African
G. tristus	South African

With the foregoing as the earliest parents, also other species, hybrids and varieties the gladiolus has a large and varied ancestry. The present day type are largely the result of more recent variety crossing. On account of the cormel system of reproduction of the gladiolus the first cross brings established new characters in the offspring. This is why gladiolus breeding is so attractive. There are no long waits except to breed for special characteristics. 'Tis true this should be done more than it is. Better types and colour would result. For that matter the ideal flowers are always ahead. They are never actually with us.

Among the first European varieties sent out were:

G. Colvillci (scented).

G. Gandavensis (likely a hybrid of the last named).

G. Brenchleyensis. Some claim a distinct variety, others a variety of Gandavensis.

G. Leichtlinii (later called Childsii).

G. Lemoinei, G. Nanceianus, G. Nanus (scented and dwarf).

G. Praecox, etc.

G. Leichtlinii or Childsii became popular on this side of the Atlantic and is partly the foundation of the present day American type. G. Childsii parents are G. Gandavensis and G. Saundersii. Herr Leichtlin made this and many other crosses about 1890. In Europe, Lemoins' hybrids were favourites, but in America G. Leichtlinus and its hybrids became most popular.

Mr. L. G. Childs, of New York, U. S., purchased the stock of Herr Leichtlinus in 1891, and 1893 he sent out many new varieties which were much in advance of Gandavensis.

The late Dr. Van Fleet produced G. Princeps from G. Cruentis (South African species), and G. Childsii variety Mr. H. Beecher. G. Princeps is a much larger type than its parents. It was on the market in 1902 and has been much grown. At that period new varieties were being produced at a rapid rate in Europe and America. On this continent many Eastern and Western growers were sending out varieties. It must not be overlooked that in America some hybridizing had been done in 1840 and varieties were sold but the great impetus came about in 1880-1900. Burbank, Cowee, Childs, Crawford, Groff, Kundord and others were responsible.

Wonderful creations were also being developed in Great Britain, France, Holland, and Canada.

Mr. H. H. Groff, of Simcoe, Ontario, must not be forgotten. His hybrids became world famous and many of the best, old and modern, varieties are the result of his ability and enthusiasm. Gladiolus lovers owe Mr. Groff a great deal. A complete biography of H. H. Groff and his work should be compiled.

The introduction of new types and colours came about through more recently discovered species being hybridized and the development of variety crossing. Blues, ruffled, laciniated and the hooded or primulinus type came in and were soon popular. Lemoin produced blues in 1885-7, and Baron Joseph Hulot, one of the best known blue in 1896. This variety no doubt is the result of inter-crossing with such as G. Gandavensis, purpurea-auratus and papilio (the latter gave the blue).

The G. Primulinus—a hooded, yellow and smaller flowering specie from Africa was in flower at Kew Gardens, England, in 1890, and in U. S. about 1908. In France, during 1905 it was in commercial use. The type was popular with hybridizers on account of its yellow colour and delicate form. Kelway of Langfort, England, crossed it with Gandavensis and Kelwayii most successfully. The hybrids were called the

Lang-prim Type and possess primulinus characteristics, viz.: hoods and colours of yellow. Orange and suffused reds came with many hybrids. Other hybridists crossed it with G. Lemoinei, G. Nanceanus and also G. Gandavensis. About 70% came hooded with the typical yellow colours. The first cross with G. Gandavensis produced wide-open flowers. The hood being undoubtedly a recessive character. There is much controversy over what a present day prim-hybrid should be. Many believe it should have its natural characteristics in hoodedness. Botanically it should remain. In its native habitat without the hood the flower could not perpetuate. The hood protects the stamens and pistil from the heavy spray of the falls, and it gives distinction.

Nowadays there are hundreds of Gladiolus breeders on this continent and Europe, bringing about wonderful results in form, vigour, size, colour, floriferousness, texture, etc. There are further features to consider as odour, arrangement of flowers, curving of stem, disease resistence, hardiness, etc. Some claim it may not be wise to cross present day varieties with species—bad features would likely be introduced, but these could soon be bred out! Authorities vary! Species, hybrids and varieties may all be crossed with ultimate success in producing new characteristics typical of the species. Patience and skill are required.

The Gladiolus flower has six segments or petals—inner and outer or lower and upper. The blossoms and spikes may be divided botanically as follows:—

1. Normal or zygomorphic:—those which divide into two symmetrical halves on one plane and the flowers face one way.

2. The reversion or atavic form:—those which turn to earlier characteristics and the flowers face two directions and are erect.

3. Regular or actinomorphic:—division of two halves on two planes, the flowers are also erect and face two ways.

4. Semi poloric:—those having abnormal regularity. The flowers face one way and are inclined to be upright. This is one of the florist's type.

Questions arise, what are the best types to grow?

1. Landscape:—these have a tall or sturdy, stiff, upright stem with large bright distinct flowers; branches would not be objectionable, and the flowers must not bleach in the strong sunshine. Also effective at a distance.

2. Decorative or Commercial:—the florists' class. The flowers must face one way and allow for easy packing and shipping also open after cutting for use in decorating. The colours must harmonize. Some florists like gracefully curved stems but it is difficult to pack such.

3. Ruffled or fluted forms:—varieties from G. Kunderdii with wavy flowers. These may be classed as a landscape type.

4. Laciniated forms: — a dissected edge or fringed flower. These also may be classed as a landscape type.

5. Primulinus hybrids:—a smaller but graceful flower spike in most pleasing colours of yellow and orange and red, also with the distinctive hood. (Opinions vary in this). Splendid for decoration and may be classed under No. 2.

6. Exhibition types:—usually looked upon as a large and well developed spike with well formed flowers. Represented by the modern varieties in large erect and fairly erect spikes. Large open flowers and chiefly distinct colours. The flowers should face one way. Flowers must have size, form, distinctiveness and durability. The spike should be

rigid and straight rather than weak and crooked.

Various types are exhibited under different classes but No. 6 is the so-called exhibition type. Thus Nos. 1, 3 and 4 are inclined.

The foregoing types should be exhibited separately. Correct judging is impossible with mixtures.

Novelties. Should also be shown separately. These may be selections from any type.

SOILS, AND PLANT TREATMENT

It will grow in any soil but thrives best in a deep, rich, mellow loam with proper drainage and pleanty of moisture and sunshine. (Should the latter be diffused through tree growth rather than direct during the heat of the day most types will last longer in flower). The plant needs to be well fed as it develops, and requires frequent watering in dry, hot weather for best results. It is wise to choose a new site every year. After three years at least an old site may again be chosen. This helps prevent fungus diseases.

PLANTING OF CORMS

In sandy soils the corms should be planted four inches or more deep, in clay soils two to four inches. Deep planting often does away with staking the spikes, but deep planting in clay land may result in late or no bloom and few cormels, through lack of aeration and soil warmth, although plenty of leaf growth may take place. In particularly clay formations two inches may be deep enough. The same thing may be said of a poorly drained site or cold muck soils. In warm, well aerated muck or peat three to four inches would be alright.

Care must be taken to plant the corm with the growth buds uppermost. Corms may be planted five to ten inches apart in clumps, as amongst roses, perennials and shrubs. In beds and rows corms four inches to twelve inches apart, according to variety and space and purpose grown is usual.

SOIL PREPARATION

The usual procedure is to manure or fertilize the land and spade or plow in fall, using well-rotted barn manure or chemical fertilizers, or a cover crop of legumes or buckwheat also wood ashes (potash) may be worked in. The latter may be spread over the surface later. The surface should be left rough. Deep spading or plowing is preferable to shallow, especially in sandy soils. In the spring a complete fertilizer or bonemeal may be added, or if no manure has been used a chemical fertilizer is usually very necessary. Thorough harrowing must follow always before corms are planted. When planting some growers strew bonemeal over the soil instead of earlier.

SUMMER TREATMENT OF PLANTS

When spikes are showing, nitrate of soda is frequently added and again in two or three weeks using each time about two ounces to the square yard. Dried blood could be used instead or alternately. Manure or chemical fertilizer of any kind must never be overdone. The former from two tons to twenty tons per acre and the latter 250 lbs. to 500 lbs. per acre. The larger quantities only should be used if the land requires it. Plant food is better added when most needed providing the land be reasonably rich in plant food to begin with.

In very hot weather water well at night or early morning. In moderately warm weather about 8 a.m. is a first-rate time but later during a cold spell. Cultivate thoroughly when surface is dry—after a rain fall or watering, deep at first in the season but shallow later.

LIME

Should soil show acid tendencies, scatter over the land, recently burnt lime-stone that has been water-slacked but not old material. It is not wise to spread lime with manure or fertilizer. A few weeks apart is best. This prevents waste of nitrogenous compounds (ammonia). From two tons to ten tons of lime per acre may be used or one ounce to four ounces a square yard.

Some strew small amounts of lime over the soil surface as flowers develop. This often brings about more decided colouring. Lime liberates plant food in the soil by breaking up insoluble compounds into soluble which the roots may take hold of.

REPRODUCING CORMS

This may be done by allowing as much foliage to remain in summer as possible and not allowing the corm to flower. The corm should be planted shallow rather than deep. This system produces most cormels. In early spring the corms may be exposed to bright sunshine for two hours, away from frost, and later soaked in warm water for an hour or so, then peeled around the eyes, or the epidermis may be cut in sections. Corms then may be placed in boxes containing soil or sand, first kept cool then given a higher temperature and kept moist. Plant out later. Corms handled in this way will have several inches of spike before planting out, This gives a longer season. Larger cormels may be handled in the same way. No doubt the exposure to sunshine and shallow planting allow chemical changes to take place more rapidly in the corm, which facilitates plant food development. When growing corms for reproduction purposes only it is wise to give them more room than is ordinary.

CORMS

The Gladiolus bulb or corm is solid and is really a large fleshy base of the stem. During the summer the corm changes—a new one forms on the old. The latter is useless after the season is over.

TABLE OF CORM SIZES

No. 1	No. 2	No. 3
1½-in. and up	1¼-1½-in.	1-1½-in.
No. 4	No. 5	No. 6
¾-1-in.	½-¾-in.	½-in and less

LIFTING CORMS

If corms are nearing or are matured digging should be done. Gladiolus corms cannot resist much frost so when winter is approaching corms and cormels should be dug and separated. The spikes are cut close to the ground, if old, but if late in maturing six inches of spike is better left.

Sun or dry curing must follow prior to storing and cleaning. Should wet weather prevail curing or ripening in a greenhouse, attic, light, airy cellar, or dry wood-shed would be first-rate. Air circulation is necessary. In about five or six weeks the old corms spike and loose material should be removed. Later storing on shelves or in crates or shallow boxes is done and not more than three to four inches deep in a temperature of about 40° F. Airy circulation is wise and where no dry or wet extremes exist. All rotten or diseased corms should be burned.

The cormels after digging up may be first placed in shallow boxes. They should not be subject to the same drying process as the corms. Earth will likely adhere to them but separation may be brought about by frequent screening in a sieve with a fine mesh and facilitated by pressing lumps with the hands against the wire. A com-

Continued on page X

Some Fallacies Regarding Co-operative Marketing of Farm Products

By J. Coke, Department of Economics, O. A. C.

A CERTAIN number of farmers have appeared to regard the co-operative agency in marketing as being possessed of some sort of magic whereby losses might be converted into profits. Co-operative marketing of farm products is heralded as the only means whereby the farmer can be saved from his present difficult situation. It is very true that it would help, but, unfortunately, we haven't got it and its most ardent advocates fail to realize that the benefits to be derived from the employment of the co-operative agency are usually not immediate but that it requires time in which to build an efficient organization for marketing, and hence the benefits are rather long time in character.

Undoubtedly the problem of co-operative organization for marketing food products has been beclouded by idealism. Undoubtedly, too, co-operation among farmers has been stimulated not only for the benefit of the farmer members but for the immediate gain of the promoter. It would seem worthwhile then to endeavor to analyze a few of the important fallacies or misconceptions regarding co-operative effort.

No doubt the first result anticipated would be that of higher prices. As has been pointed out by Dr. Erdman in the paper which appeared in these columns recently, farmers over-emphasize the price control features of co-operatives. Perhaps this is natural but inevitably it will lead to trouble. Too frequently the co-operative may be regarded as failing unless it can secure high prices for all commodities a farmer has for sale. This is an absolute impossibility, but the impression may be illustrated by the experience of a small co-operative which operated for one year in an Ontario town. This was an apple marketing association, and among other varieties offered for sale there was a large quantity of Ben Davis. One of the questions which the management had to meet was, "Why can't the Company get as much for 'Bens' as they do for 'Spies'?" As a result of this attitude on the part of the members the company was forced out of business. So long as the farmer fails to recognize differences in quality, so long will the path of the manager of the co-operative be strewn with tacks. Quality products must be produced first and for these better prices may be secured.

It is, of course, possible to adjust production to consumption more easily through the co-operative than under private enterprise. An efficient co-operative must be possessed of supply and demand information and it is possible to secure a more accurate forecast through co-operatives than otherwise. But even here we believe that the possibilities of price takes on another aspect in that various price fixing schemes may be employed. Virtually it is believed that the farmer should build a monopoly. Or if monopoly is not brought about then in some way a big stick is to be employed whereby the consumer is to be forced to pay high prices. Even if it were possible such a scheme would probably defeat itself because high prices would reduce consumption as well as stimulate production and the result would soon be an over supply. There are too many people engaged in agriculture and farm products are too perishable in character to make monoply control possible at least on a wide scale. Where ever this price control idea has been tried it has failed absolutely (certain so-called authorities on co-operative marketing to the contrary notwithstanding).

Again the farmer is firmly convinced that huge profits are being made by those rendering middlemen services. Careful study leads to the opposite conclusion. Where it may be shown that large profits are being made it may be demonstrated that such are not due to roguery, but to a high degree of efficiency. Contrary to the general opinion the profits possible in a business are not set by the large efficient enterprise by but the marginal enterprise or that enterprise which is just able to stay in business. The farmer compares the prices received by him with those paid by consumers and he notes the wide difference. What is the cause? It may be due to inefficiency in rendering necessary marketing services, but some other things must be taken into consideration as well. More services in marketing food products must be rendered to-day than in any other period of history. Pure food laws, and other regulatory measures, delivery charges, packaging, transportation, storage, etc., all have added to the costs of doing business. In other words, we demand in these days, increased service which must add to the expense, but so long as the consumer is willing to pay for it, it is justified—the machinery whereby this increased service must be rendered has begun to creak. "Here is where" your co-operative should step in, but a co-operative which merely seeks to advance prices to farmers will fail unless it realizes that it has not only products but service to sell.

Many co-operatives have "too many irons in the fire"—marketing, co-operative purchasing, educational programs, and even politics. Even in marketing, the program at the outset is frequently too large, both as regards variety of commodities handled and the extent of the business, though the latter statement would need to be qualified materially. Too frequently farmers' co-operatives endeavor to "ape" highly successful large scale private enterprises such as the packers, the harvester companies and steel corporations, failing to realize that these gigantic concerns were not perfected in a few days, and the mechanism by which they were operated is rather delicate. One little mistake might wreck the whole business. There are no half measures in the conduct of large scale enterprise. It is make or break on each deal.

May it also be suggested here that there are rather marked differences between the U. S. Steel corporation, The Big Five, The International Harvester Company, for example, and a large scale farmers' co-operative.

The history of successful business indicates that progress is slow. In human experience it has been found that one must first creep, then walk and finally one is able to run. In many farmers' co-operatives an attempt has been made to skip the first two corresponding stages. Literally they try to run before their legs have gained sufficient strength to support their bodies. Elaborate plants, equipment, and a large staff are employed before much business is obtained. Too frequently overhead costs are unnecessarily high. We do not wish to be dogmatic, but we believe that most successful co-operatives have begun with relatively simple problems to solve and have gradually worked up to the point where the really difficult and expensive services are rendered. When co-operatives begin with problems of a local character they are controlled by local men—local leadership, and responsibility is thus developed. The centralized co-operative is rather too new to condemn wholly, but by the same token it has not demonstrated that it has any marked advantage over the older plan, and has some real weakness. The fundamental weakness lies in the fact that the individual member does not feel that he has an interest in the Company and will be found to refer to it as "the company" or "your company," but never as "our company." Local responsibility, local control of local affairs usually must exist in a successful co-operative. For this reason national, state or province wide organizations are more likely to fail.

In these days it too frequently happens that in describing a co-operative one hears the remark: "It is based on a five-year contract." That legal contracts should be employed we do not question, but co-operatives have been known to succeed without them, and to say that a co-operative is based on a term contract is to imply that the business of marketing is legal in character and not an economic endeavor. It isn't the contract itself but the spirit behind the contract that is the important thing. A number of instances might be given where the contracts were signed, but the organization never functioned, and some very successful co-operatives have no contracts. The contract is said to insure volume of business coming forward. It usually does. One thing, however, should be emphasized and that is that volume of business is a relative term, many co-operatives have stated in their contracts that unless 51 per cent. of the production is signed up the co-operative will not begin operation. Why should such a volume be necessary? If the co-operative is worth its salt it should be able to do business efficiently with much less than 51 per cent. or 60 per cent. of the production. Of course, this is more of the monopolistic philosophy of certain promoters of co-operation.

A word of caution is also necessary regarding the promotion of co-operatives. The professional promoter of necessity makes promises that are difficult to fulfil. He paints too bright a picture of the results of co-operative marketing. We believe that it is much better to treat the farmer as a thinking animal to whom appeal to reason is not without result. It is generally recognized that revival meetings do not produce lasting effects in religious effort and the same would be true of co-operative effort.

Another fallacy which is held by many is that co-operatives can be run with little capital. We have in Ontario at least one concern which has invested all its capital in its equipment, leaving no surplus whatever for advance payments for the products of its patrons, or what might be called circulating capital. This is probably due to inexperience and to lack of appreciation of the costs of operation. Adequate capital is next in importance to capable management and this raises another point.

In an endeavor to cut the costs of operation low priced management may be secured. Business ability and experience are at a premium and consequently a relatively high price will have to be paid for such service. The writer is of the opinion that some co-operatives have too many low priced officials where a smaller number of more capable employees would prove more satisfactory, even though they might be paid higher salaries individually. Obviously it is possible to pay too much for managerial service and in a few cases this has been done, but such a situation is due rather to failure to pick the man than to the fact that real managerial ability must command a good salary. It is also true that the salaries paid by some well-known co-operatives have been grossly exaggerated by professional promoters of co-operative enterprise. It is unreasonable to expect that farmers make the best managers for co-operatives. The farmer as a rule runs a small scale business and a co-operative enterprise is apt to be a large scale business. If, for example, a farmer has a business turnoever of five thousand dollars in his farm business, is it reasonable to suppose that he can readily adjust himself to a business turnover of say ten million dollars? If he is able to do so then he is surely an exceptional man. To secure good management means that brains will be employed in the business in place of mediocrity.

In this brief article we have tried to caution the readers of "The Review" against certain fallacious views of co-operative marketing, at the same time we do not wish to be understood to be without a firm belief in the principles of co-operation. However, we do not believe that there are very definite rules or forms on which a co-operative must be based, but in each case the commodity, the local and the territorial condition will govern the form of organization.

The Treatment of Iron and Steel

By E. W. Kendall, Mechanics' Dept.

THE manufacture of iron and steel was discussed in the February Number of The Review. In this article it is proposed to discuss some of the processes that these materials undergo.

One of the first things that the early smith would learn would be that certain "heats" gave certain results and that if one worked below or above these heats there was always trouble and difficulty. For example, wrought iron is a material which, if worked at a low red heat is almost sure to split along the slag seams, a trouble which is particularly noticeable when one tries to forge a sharp point on a piece of this material. The result resembles nothing so much as a piece of frayed rope-end. This is undoubtedly due to the presence of the slag seams in the material.

The most suitable heat for wrought iron is one that may be described as a white heat. At this temperature it is very plastic and the experienced smith knows that he does not need to use heavy blows so long as he works rapidly. As soon as he notices the heat falling off he will reheat, if necessary. In bringing iron to a white heat one should do so, rather slowly in order that the piece shall have the same temperature right to the centre.

Just beyond the white heat we reach what is known as the welding heat. It will be easily recognized by the greasy appearance of the surface of the metal and by a bluish color, such as you see in the electric arc. Not far beyond the welding heat is the burning point, where the metal commences to disintegrate rapidly.

The process of welding is one that requires the greatest care on the part of the operator. The fire must be clean, and carefully built, so as to have depth enough to ensure the bulk of the oxygen in the blast being used up before it strikes the white hot iron, otherwise it would form a coating of iron oxide on the surface and so prevent a good weld. The fuel for a welding fire should be coke, a supply of which, from previous fires, ought to be on hand.

In heating the pieces, a light blast is used at first to allow them to become hot to the centre. The blast is then gently increased and the exact welding point arrived at on a rising heat. Once this point is reached the whole aim of the smith is to the surfaces to be welded into perfect contact without the inclusion of any foreign matter such as oxide or ash, and he also tries to complete the weld in one heat and with as few blows as possible.

The forging temperature of mild or low carbon steel largely depends upon its carbon content—the more carbon, the lower the heat. In general, however, the heat is lower than that for wrought iron, and its welding temperature is also lower. It is a much more difficult material to weld and one generally requires the assistance of a flux which will protect the surface from the air and in which iron oxide is soluble at these high heats. When the surfaces are forced into contact the molten slag will be squeezed out, leaving them quite clean and capable of being united. The most common fluxes are borax and borax combined with other suitable chemicals. The proper welding heat for steel is obtained with an orange yellow color, being slightly less than that for iron. If the carbon content is high, the heat will have to be approached with care or burning will take place. Mild steel is very ductile and can be forged into many different shapes without the cracking that would be sure to take place if one was using iron. By suitable heat treatment mild steel can be made useful for a great variety of purposes. When the term "heat-treated" is used one can be practically sure low carbon steel or its alloys is being discussed.

The process of annealing is one of the most common treatments to which steel is subjected and is carried on to reduce stresses set up in steel when it is being hammered or rolled in manufacture. It is a softening process which not only enables us to work the steel parts easily with cutting tools, but at the same time prevents the pieces cracking or springing out of line, when the outer layers are removed. The method is as follows: The parts are buried in such a way that the air cannot reach them, powdered charcoal being generally used to pack the parts in cast iron boxes. The whole is then heated until the parts are a full red heat and held at that temperature until it is certain that all points of the forging have reached the proper heat as determined by an electric thermometer. A simpler method, but one which is not nearly as efficient, is to slowly heat the piece to a full red and bury it in the very hot ashes at the side of the forge. The fire is then allowed to die down and the ashes gradually cool off. Sometimes a variation is introduced by clamping the red hot piece between two bits of board, the metal burning its way into the wood. The whole is now covered with ashes, and allowed to cool slowly.

Best results are obtained by a slow heating to a dull red and then a slow cooling out of reach of the air. It should be noted that if air can reach the red hot metal some of the carbon in the outer skin will combine with oxygen giving an outer skin different from the interior.

Continued on page xiv.

THE OAC REVIEW

ODELL

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A. McGUGAN, '26, *Associate Editor*

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WM. HANSLER, '25, *Poultry*
J. J. BRICKLEY, '26, *Farm Power*
W. B. REYNOLDS, '26, *Alumni*

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F. C. MOYER, '27, *Art*
R. HURTUBISE, '25, *Apiculture*

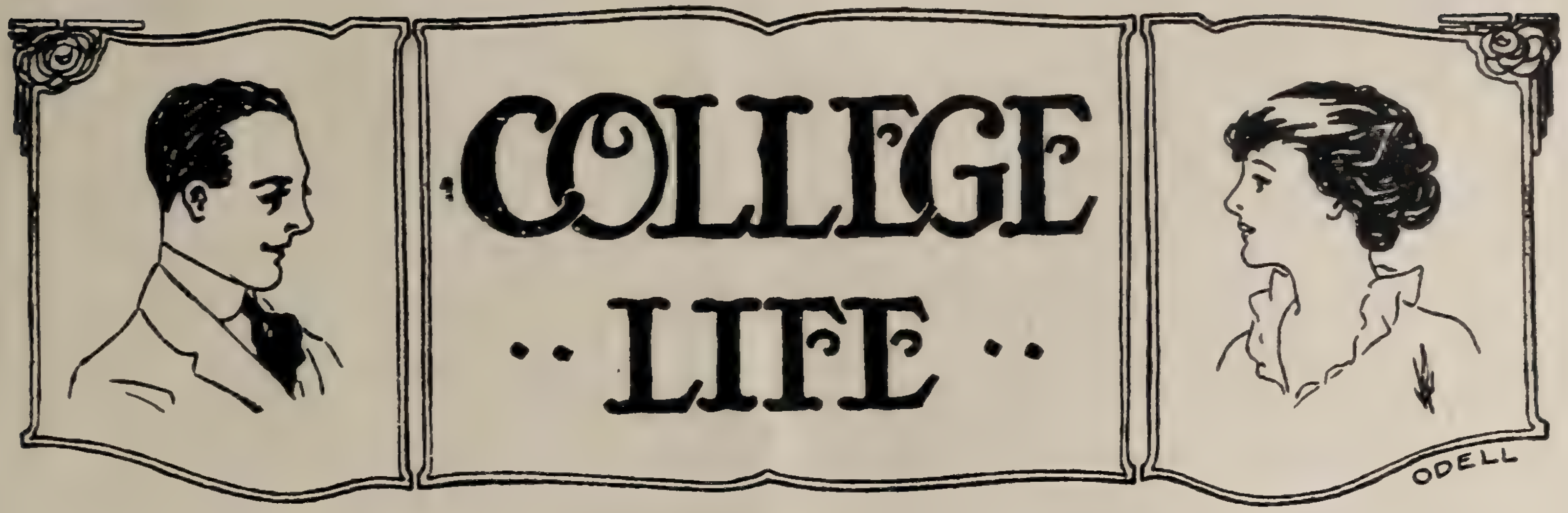
EDITORIAL:

The Annual Change

WITH this issue a partially new staff takes up its labors. We look forward with confidence to the coming months and know that the work will be conscientiously and efficiently done.

To those who are relinquishing their positions, we extend our thanks and express our deep appreciation of their support. Particularly must we mention Hamilton Plunkett and Jack Kellough, who came along each month with the copy for the Alumni and Athletic departments; also to those to whom is entrusted the very profitless and thankless duty of gathering articles for the Experimental, Agricultural, Horticultural and other fields. The average person has no idea of the persistency in correspondence and the number of approaches necessary to obtain the desired number of articles to fill out each issue. While we are dwelling on this matter it is well to point out that few articles have been produced by the student body of late. Two articles since Christmas have been forthcoming from the three junior years. We were about to say more but you know it already, and can supply your own moral. Particularly does the staff desire co-operation in securing locals, and descriptive articles or short stories to leaven up the heavier reading of the more technical articles. In sending along locals, bear in mind that the graduate is interested and that The Review possibly means just a little more to him than to the undergrad. Thus locals touching some of the older traditions and familiar figures on the staff are particularly desired.

We print this reminder hoping that it may jog the odd mind into giving the new members of the staff a little help in the lean summer months, when the supplies of material are pitiably meagre.



COLLEGE LIFE

Hail Twenty-Four

MIRTH and laughter filled the air, no note of repressed sadness indicates that this is a farewell party. A soft light transformed the gymnasium. The orchestra plays—stops and plays again—"College days—days you never will forget—days you never will regret!"—Hush! an announcement: "The next dance will be a Paul Jones, girls to the north wall, boys to the south. Fourth year select your partner for the farewell prom."

Again the light of the gym, fades to that of a mystic moon—a novelty moon in the dim light of which the fair ones glide, bedecked with sparks of burning incense—perhaps to enlist the gods on behalf of '24.

Waking from the quiet of the moon waltz, tumult now arises—horns, buzzers, crackers—more horns—noise and din—shouts and laughter. Hilarity reigns—the orchestra are moved to play "I'm Running Wild!"

Supper is announced.

Supper, enticing to the eye and delicious to the pallet. A moment with our Mac Hall friends as we sip tea and talk—sweet nothings.

The gong rings.

Hark! It's Jeff Williams, who would a word with us to convey best wishes to the graduating year. Calling upon Doug. Edmonds to lead the crowd in the fourth year yell. Doug. first replies urging those who are left to carry on—then the fourth year yell:

"Co Boss! So Boss!
Whoa! Back! Gee!
Buckwheat, Barley, O. A. C.!
Seniors! Seniors! Ha! Ha! Ha!
'24! 24! Rah! Rah! Rah!

Boom - chicka - boom and the orchestra plays College Days — on with the dance again. More noise and gaiety then ever. What with Spanish singers mingling with the crowd, novelties flowing forth in volume and variety, and miles of serpentine.

"The next dance will be the home waltz." Make it long!—and it was—20 minutes. But, oh! There's "God Save The King." The last school party of the year is over!

Presentation to Professor W. R. Graham

A very pleasant event took place at the Poultry Department of the Ontario Agricultural College last night. About twenty-five members and ex-members of the department met in the library of the Poultry Building, with Professor and Mrs. W. R. Graham and family, to celebrate the anniversary of Prof. Graham's twenty-fifth year of public service as head of the Poultry Department.

After spending some time pleasantly in social intercourse and games, the party repaired to another room, where Professor Marcellus, on behalf of the staff, after reading an address and a number of congratulatory telegrams and letters from absent ex-members, presented Prof. and Mrs. Graham with a handsome Chesterfield suite. Prof. Graham replied in his happy characteristic manner.

After delicious refreshments, served by the wives of the members of the staff, the party broke up with many expressions of hearty congratulations to Professor and Mrs. Graham.

Following is the address:—

"Dear Professor and Mrs. Graham:—

"A quarter of a century of unbroken public service falls to the lot of few individuals, and when that service has been crowned with success which is paramount, it is desirable that some recognition of the fact be shown. By your unsatiable desire for greater knowledge relative to your life work, and your unselfish efforts and energetic labor, you have been instrumental in raising a branch of the agricultural industry from a position of obscurity to one of prominence, and vast national economic importance. We congratulate you upon the success which has resulted from your twenty-five years' of effort.

"It is not, however, only for the purpose of eulogizing you on your success that we are assembled here. The past and present members of your department have feelings towards Mrs. Graham and yourself which are much deeper than this. Any success which we have attained we owe largely to you, Professor Graham, for you have been at all times most considerate, unselfish and painstaking in your instruction and help. There have been many occasions when your kindly and valuable advice has assisted us through situations and pitfalls that were both dangerous and difficult. Advice, often of a purely personal nature, has in innumerable instances proven invaluable. Mrs. Graham and yourself have at all times shown a keen personal interest in our welfare, and we cannot, in our short life span, hope to repay you for your many kindnesses.

"We would be decidedly remiss if on this occasion we were to forget those absent members of our group who have passed to the Great Beyond. They left behind them ideals of manhood and service which will long be remembered by those of us who knew them intimately. We regret that they are not with us at this time, but we know their feelings on this occasion would warmly support our own.

"In commemorating your twenty-fifth anniversary as head of the Poultry Department we would also remember the anniversary of that other occasion when you made entrance into society and no doubt advertised the fact as a good poultryman should. We, one and all, hope that you may be long spared by Divine Providence to enjoy many more anniversaries of your birth and the companionship of your family, and that the poultry industry may for many years to come enjoy the benefits of your thought and effort.

"Words are inadequate to express our feelings and good wishes towards Mrs. Graham and yourself at this time, but, as a token of our esteem and appreciation, we would ask you to accept this Chesterfield suite. We trust that you and your family may be long spared to enjoy its use, and we are selfish enough to hope that we and others to follow may have the benefit of your instruction and advice for many years to come."

The Reckoning

FIRST YEAR ASSOCIATE YEAR STANDING

Arranged in order of Proficiency.

Maximum—3100.

1.	Scott, W. A	2496	
2.	Hodgins, —	2304	No. 10.
3.	Thompson, R. W	2255	
4.	Trenouth, E. M	2217	
5.	Toole, C. E	2203	
6.	Garrity, J. H	2160	
7.	Thompson, A. J	2124	
8.	Eliazarian, M	2091	Nos. 14, 17.
9.	Blewitt, B	2077	
10.	Stringer, L. J	2067	Nos. 8, 24.
11.	Ferguson, J. A	1999	Nos. 10, 14.
12.	Wandabience, D	1997	No. 14.
13.	Jackson, N	1987	No. 14.
14.	Bartlett, A	1932	
15.	Harrison, N. W	1892	
16.	DeWolfe, M. W	1872	Nos. 8, 14.
17.	Becking, H. T	1847	No. 14.
18.	Agar, W. J	1841	No. 14.
19.	Hamilton, R. H	1725	Nos. 1, 10.
20.	Lavis, J. J	1722	Nos. 6, 10, 14.
21.	Webster, F. G	1707	Nos. 6, 8, 24.
22.	Bolton, G. A	1703	Nos. 10, 12, 23.
23.	McClellan, J. A	1649	Nos. 1, 10, 20.
24.	Hoag, F. C	1500	Nos. 4, 5, 10, 12, 16.
25.	Baker, C. C	1558	Nos. 1, 2, 4, 8, 10, 14.
26.	Cook, D. M	1530	Nos. 1, 6, 8, 16.
27.	Robb, D. D	1464	Nos. 5, 12, 14, 16, 24.
28.	Comer, R	1374	Nos. 1, 5, 9, 10, 11, 14, 22, 24.
29.	Black, H. W	1335	Nos. 5, 10, 11, 14, 16, 20, 22.
30.	Dyke, —	1142	Nos. 6, 8, 9, 10, 11, 13, 14, 15, 16, 20, 21, 23, 24.

Aegrotat Standing—C. S. Whittaker.

List of Subjects

1. English Literature.
2. English Composition.
3. Public Speaking.
4. Mathematics.
5. Hydrostatics.
6. Soil Physics.
7. Elementary Drainage.
8. Mechanical Drawing.
9. Farm Mechanics.
10. Chemistry.
11. Geology.

12. Botany.
13. Zoology.
14. Horticulture.
15. Field Husbandry.
16. Animal Husbandry, (Wr.)
17. Animal Husbandry, (Pr.)
18. Dairying.
19. Poultry.
20. Apiculture.
21. Veterinary Anatomy.
22. Materia Medica.
23. Agr. Economics.
24. Rural Sociology.

1924—FIRST YEAR DEGREE

Maximum 2500.

1.	Stevens, A. H	2022
2.	Young, L. C	2019
3.	Wilson, J. E	1858
4.	Baker, J. L	1827
5.	Blaney, J. E	1795
6.	Hart, G. M	1700
7.	Yule, D. B	1693
8.	Grisdale, A. J	1683
9.	Hart, W. M	1620
10.	Williams, Miss H. B	1618
11.	Ridley, J. E	1576
12.	Silcox, L. M	1529
	No. 14.	
13.	Blair, B.D	1511
	No. 16.	
14.	Bray, F	1509
	No. 1.	
15.	Paradis, R	1462
	No. 14.	
16.	Moyer, C. F	1460
	No. 10.	
17.	Denham, R. T	1449
	No. 4.	
18.	Master, H. G	1431
	No. 8.	
19.	Kelly, D. C	1419
	Nos. 5, 8, 14.	
20.	Deakin, A	1387
	No. 5.	
21.	Edwards, C. J	1373
	No. 16.	
22.	Whiteside, H. W	1329
	Nos. 6, 10.	
23.	Pears, L. G	1283
	Nos. 13, 20.	
24.	Dies, A. S	1278
	Nos. 6, 9, 12.	
25.	Bamforth, H. L	1263
	No. 5.	
26.	Winchester, E. W. G	1193
	Nos. 1, 5, 7, 12, 14, 16.	
27.	Brady, J. J. E	1132
	Nos. 4, 6, 10, 12, 19.	
28.	Jamieson, A	1134
	Nos. 1, 5, 14, 18, 20.	
29.	Bell, J. D	994
	Nos. 4, 5, 6, 8, 9, 10, 12, 14.	

List of Subjects

1. English Literature.
2. Public Speaking.
3. English Composition.
4. Heat.
5. Electricity.
6. Bacteriology.
7. Mechanics.
8. Mechanical Drawing.
9. Farm Mechanics.
10. Chemistry.
11. Geology.
12. Botany.
13. Zoology.
14. Horticulture.
15. Field Husbandry.
16. Animal Husbandry (Pr.)
17. Dairying.
18. Poultry.
19. Apiculture.
20. Agr. Economics.

1924—SECOND YEAR ASSOCIATE

Maximum—3600

1.	Howe, N. C	2801
2.	Morwick, F	2715
3.	Garrard, E. H	2632
4.	Jillard, A. S. D	2591
5.	Goring, E. T	2591
	No. 27.	

6.	Emigh, V. M	2362
7.	Thompson, G. E	2355
8.	Lane, C. H	2340
9.	Fisher, H. R	2333
10.	Graham, T. O	2312
11.	Wilkes, E	2311
12.	Schneller, W. J	2202
13.	Morrison, J. S	2117
14.	Jennings, R. J	2098
15.	Whiteside, G. A No. 2.	2090
16.	Baldwin, E. W No. 9.	2061
17.	Pallesen, N. D	2060
18.	Donald, A. E	2055
19.	Laughlin, S. R	2053
20.	Lewis, G. D Nos. 23, 27.	2032
21.	Hill, T. M No. 27.	2020
22.	Hunt, L. C Nos. 13, 16, 17, 18, 27.	1996
23.	Twinn, C. S Nos. 21, 27.	1995
24.	Yingling, C. M	1975
25.	Rittenhouse, R. H	1964
26.	Macdonald, H. E Nos. 9, 11.	1942
27.	Simmons, C. E Nos. 13, 14, 16, 22, 25, 27.	1758
28.	Kernohan, R Nos. 1, 7, 9, 16, 17, 21.	1672

English Standing

(60% Required).

Donald, A. E	57. %
Hill, T. M	58.2%
Jennings, R. J	54.2%
Kernohan, R	50.0%
Laughlin, S. R	56.2%
Macdonald, H. E	53.4%
McConnell, H. E	56.2%
Pallesen, F. D	56.2%
Rittenhouse, R. H	55.8%
Twinn, C. S	58.4%
Whiteside, G. A	53.0%

List of Subjects

1. English Literature.
2. English Composition.
3. Public Speaking.
4. Economics.
5. Thesis.
6. Surveying and Drainage.
7. Agr. Engineering.
8. Electricity.
9. Mechanical Drawing.
10. Farm Mechanics.
11. Soil Chemistry.
12. Animal Nutrition.
13. Bacteriology.
14. Entomology.
15. Horticulture.
16. Syst. and Econ. Botany.
17. Plant Physiology.
18. Field Husbandry.
19. Animal Husbandry (Wr.)
20. Animal Husbandry (Pr.)
21. Breeding and Marketing.
22. Feeding and Management.
23. Dairying.
24. Poultry (Pr.)
25. Poultry (Wr.)
26. Veterinary Obstetrics.
27. Veterinary Pathology.
28. Agr. Economics.

1924—SECOND YEAR DEGREE

Maximum—3000

1.	Walley, G. S	2544
2.	Cruickshank, G. Y	2389
3.	Young, W. A	2371
4.	Lemieux, O	2368
5.	Wharry, J. G	2349
6.	Fisher, W. C	2292
7.	Lewis, F. O	2228
8.	Morton, M. J	2214
9.	McGugan, A	2185
10.	Webb, B. G	2149
11.	Maistre, W. G. C No. 21.	2124
12.	Hannan, H. H	2107
13.	Medd, A. B	2105
14.	Pugh, R. M	2069
15.	Kemp, W. L	2038

16.	Hawkins, R. T.	1976
17.	Cox, J. A.	1976
18.	Schenck, L. M.	1973
	No. 21.	
19.	MacArthur, H. A.	1858
20.	Young, W. C.	1949
21.	Whitmore, J. E. D.	1853
	Nos. 21, 12.	
22.	Miller, W. C.	1770
	No. 15.	
23.	Rintoul, A. T.	1764
	Nos. 7, 13, 10.	
24.	Taylor, J. B.	1696
	Nos. 7, 13, 19.	
25.	Stewart, F. K. B.	1682
	Nos. 7, 13, 19.	
26.	Wilson, I. S.	1520
	Nos. 13, 21, 12.	

AEGROTAT STANDING

A. H. O. Colbert.
W. E. Hamilton.
W. B. Reynolds.

PARTIAL STANDING

H. A. Knox.
E. W. Kendall.
(Some subjects yet to complete.)

LIST OF SUBJECTS

1. English Literature.
2. Public Speaking.
3. Composition.
4. Genetics.
5. Thesis.
6. Hydrostatics.
7. Mathematics.
8. Soil Physics.
9. Farm Mechanics.
10. Inorganic Chemistry.
11. Organic Chemistry.
12. Qualitative Chemistry.
13. Quant. Chemistry.
14. Syst. Entomology.
15. Econ. Entomology.
16. Horticulture.
17. Botany (Fall Term).
18. Botany (Winter Term).
19. Light.
20. Field Husbandry.
21. Animal Husbandry (Wr.)
22. Animal Husbandry (Pr.)
23. Bacteriology.
24. Dairying.
25. Poultry.
26. Apiculture.
27. Animal Physiology.

1924—INTERMEDIATE YEAR

Maximum—100%

1.	Simpson, J. A.	75.8%
2.	Baird, F. F.	74.1%
3.	Miller, H. E.	65.7%
4.	Berry, J. A. B.	64.5%
5.	Snyder, R. G.	62.4%
6.	Brickley, J. J.	59.2%
7.	Lang, J. M. S.	56.6%
	No. 5.	
8.	Richardson, F.	56.3%
	No. 18.	
9.	Hoover, O. E.	54.4%
	No. 8.	
10.	Reid, C. G. L.	52.2%
	No. 8.	
11.	Roxburgh, J. M.	47.6%
	Nos. 3, 11, 8.	
12.	Kennedy, A. H.	45.0%
	Nos. 1, 3, 5.	
13.	Thomas, R.	41.2%
	Nos. 3, 6, 9, 11.	
14.	Daly, C. F.	41.0%
	Nos. 5, 6, 8, 9, 10, 11, 13, 18.	
15.	Bonyman, E. D.	28.1%
	Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 16, 17, 18.	

CONDITIONED ON INSECT COLLECTIONS

(Not yet completed.)

Bonyman, Brickley, Hoover, Kennedy, Lang, Miller, Richardson, Roxburgh, Simpson.

AEGROTAT STANDING

McEwan, J. W. G.

List of Subjects

1. English Literature.
2. English Composition.
3. Mathematics.
4. Mechanics.
5. Heat.
6. Electricity.
7. Hydrostatics.
8. Inorganic Chemistry.
9. Qualitative Chemistry.
10. Organic Chemistry.
11. Quantitative Chemistry.
12. Systematic Entomology.
13. Botany.
14. Genetics.
15. History.
16. Bacteriology.
17. French.
18. Light.

1924—THIRD YEAR

Maximum 100%

1.	Marshall, J.	75.4%
2.	Freeman, C. E.	75.0%
3.	Kerstine, A. G.	73.7%
4.	Colbeck, L. H.	72.1%
6.	Kellough, J. Y.	69.4%
7.	Gregory, F. W.	68.7%
8.	Jones, N.	68.5%
9.	Kerr, W. L.	67.9%
10.	Heatherbell, E. H.	67.82%
11.	Parrish, F. J.	67.80%
12.	Eastman, W. G.	67.1%
13.	Sager, O. L.	65.8%
14.	Webster, J. L.	65.6%
15.	Pridham, A. M. S.	65.3%
16.	Griesbach, L.	65.1%
17.	Hand, C. O.	64.9%
19.	Davey, A. E.	63.7%
20.	Buchanan, W. R.	63.5%
21.	Broughton, A. S.	63.4%
22.	Hansler, W. A.	62.7%
23.	Plunkett, H.	62.5%
24.	Watt, M. A.	61.7%
25.	Jackson, G. T.	61.1%
26.	Webber, W. A.	60.1%
27.	Fahrig, C. A.	58.9%
28.	Thomas, H. L.	58.3%
29.	Elliott, R. R.	58.1%
30.	Demaray, R. L.	58.0%
31.	Hurtubise, R.	57.8%
32.	Marritt, J. W.	57.6%
33.	Cross, J. B.	56.6%
34.	Owens, D. R.	53.5%
35.	Faulkner, D. T.	52.36%
36.	Forward, B. F.	52.3%
37.	Cavano, L. E.	49.0%

Conditions

J. Marshall (Bact. Diseases of Plants) (No Paper).

E. H. Heatherbell (English Literature).

M. J. Williams (Genetics).

H. Plunkett (Beef Cattle and Sheep) (Pr.)

W. A. Webber (Biochemistry).

H. L. Thomas (Eng. Literature).

R. R. Elliott (Trigonometry, Algebra) (No Papers).

R. L. Demaray (Agr. Engineering Biochemistry).

B. F. Forward (Dairy Cattle and Swine, Biochemistry).

L. E. Cavano—Biochemistry, Average on Majors 48.7%; General Average, 49%.

D. T. Faulkner (Breeds and Pedigrees, Dairy Cattle and Swine (Wr.), Beef Cattle and Sheep (Wr.) Biochemistry.

N.B.—Macfarlane and Williams, who took the 1st and 2nd years in one, standing 5th and 18th, respectively, are not granted complete third year standing until all first and second year subjects have been completed.

ATHLETICS

ODELL

Baseball

Inter-Faculty Finals

O. A. C. at Dents.

O. A. C. played the second home and home game with Dents on March 00. After a hard fight, O. A. C. lost with a score of 7-6. The game was fast throughout and each team played good ball. For a time O. A. C. led and then Dents led in the score. Dents' fielding won them their game. The O. A. C. men had no trouble in hitting the Dent pitcher, but many drives were caught from rebounds off the back wall. O. A. C. lost in base running. Being unfamiliar with the gym. they could not make runs that way as they did in their own gym. Rittenhouse pitching for O. A. C. pitched a good game, but received only fair support. But comparing the game with the one played at O. A. C. the unfamiliar gyms. seem to have had much to do with the winning of both games.

O. A. C. vs. Dents.

After each team had won and lost a game, the final had to be played off. As it is a rule that the final game must be played in Hart House gym. this game came immediately after the one lost by O. A. C. Again O. A. C. lost, this time 8-4. The game was not as fast as the first one as both teams were tiring. Both pitchers pitched both games and pitched well until the end. O. A. C., although losing one game came back to the next with a snap, but the winning team always has the advantage, and Dents scored more often than O. A. C. This is the second time that O. A. C. has been in the finals with Sr. Dents and has lost. It is hoped that the third time will be lucky. Our team has faced several disadvantages in not having a game until the semi-finals, and in being subject to the ruling which requires the final game to be played in a gym. unfamiliar to our players. This is not an apology for the team's record but we feel it is only justice that these facts should be mentioned. Dents have a wonderful team and they earned their victory.

The Annual Swim

The annual Aquatic Meet was held in the College gym. tank on March 22nd, and proved to be a successful athletic event. A small band of various enthusiastic year supporters were treated, in a few events, to some real excitement.

The long races had been run off in the earlier part of the week, so that the whole went along smoothly and rapidly until the relays, where the great excitement was evident.

"Ken" Ross was the all-round man of the day and carried off the honors of the day as grand champion with 37 points. Le Maistre was second with 16 points. Two records were broken: Matthews, '27, lowered the novice 52 yards by 1-5 second and first year lowered the novice relay time by 1 second. The events were:

52 yards free—Ross, LeMaistre, Daly.

104 yards free—Ross, LeMaistre, Young.

208 yards free—Ross, Le Maistre, Colbeck.

440 yards free—Ross, Colbeck, Le Maistre.

880 yards free—Ross, Le Maistre, Young.

1 mile, free—Ross, Le Maistre, Robertson.

52 yards breast—Robertson, Harrison, Ogburn.

52 yards back—Ozburn; Ross, Colbeck, tie.

Fancy diving—Lewis, Pugh, Swartz.

Long plunge—Ross, Colbeck, Daly.

35 yards beginners — Wheatley, Broughton, Plunkett.

52 yards novice—Matthews, Moran, Grisdale.

Life saving—Robertson, Harrison, Pugh.

Under-water swim—Swartz, Colbeck.

Inter-year relay novice—'27, '24, O. V. C.

Inter-year relay senior—'26, '27, '24.

Year standing—O. V. C., 49 points; '26, 32 points; '24, 30 points.

Recorders—McLean, Coke.

Timers—McConkey, C. Riley.

Judges—R. E. Balch, Dr. Nelson, Watkin.

Starter—Doug. Adams.

BRONZE MEDALLION

The following men have been awarded the Bronze Medallion for life saving work.

F. C. Craig, Frank Moran, Kenneth Harrison, N. C. Howe, F. F. Norwich, E. M. Trenouth, A. D. Hember, S. E. Lewis, W. J. Rumney, R. T. Turner.

AWARD OF MERIT

G. R. Lane, A. W. Robertson.

A Worthy Record

Another year of athletic activities has closed at the O. A. C. The boys of this college have been very successful in the various lines of sport, and the year 1923-24 has been one which will be long remembered here.

In October we began very auspiciously by breaking five records on Field Day, one of which had stood since 1892. The rugby team of 1923 was one of the best ever developed at the college. They tied with St. Michael's College and Varsity for the Western Intermediate Inter-Collegiate championship, but lost to the St. Michael's in the playoff by a score of 6-4. In the Inter-faculty Harrier Meet our runners won the Brotherton Cup, beating their nearest competitors by eleven points. The Soccer team won the semi-finals and finals and the Arts Cup, emblematic of the Inter-faculty Soccer championship, after four hard games.

In the spring term our boxers and wrestlers started the season by winning the Davidson Cup, the Inter-faculty championship trophy, after several weeks of careful training. We had a brilliant basketball team which lost out in the championship race through misfortune, as they were at least the equal, if not superior, to any team in the league. Our hockey team was a good one, which broke about even in the games won and lost. The hockey teams need earlier training, and better coaching to come up to the standard of the leagues. The baseball team won it's semi-final games, but lost out in the finals after three very close contests.

The indoor meet this year was well-attended and although no records were broken, some were almost cracked. The indoor meet was well contested by the years. Each year showed great year spirit, although '26 won the meet by a wide margin. There are many good athletes in the other years and the O. A. C. can be proud of its men.

The Aquatic meet was a success· Several records were broken. The grand champion, Ken Ross, who broke some of the records is a Veterinary student and due to his work they won the Aquatic meet.

Too much praise cannot be given the officers of our Athletic Society, whose untiring efforts have been very well rewarded in the results obtained. But the greatest things are the College spirit which has been developed and the gentlemenly, clean, sportsmanship which has been displayed at all times by the O. A. C. athletes. The College is, and has every right to be, proud of her athletes.

AFTER BACTERIOLOGY

Ye gods! I'm full of microbes—
  The idea makes me shiver;
They gyrate through my red blood and
  Turn cartwheels on my liver.

If I should cut my finger now,
  Or my aesophagus;
They'd shake hands all around and start
  To manufacture pus.

If I caught cold they's shout with glee,
  For then if I should sneeze,
They'd go cavorting forth to taint
  The joyous autumn breeze.

Oh, black plague germs, they live in fleas
  The fleas inhabit rats;
Ten million microbes each camp out
  In ordinary cats.

Mosquitoes love malaria—
  They drag it in the house;
While typhus bugs find room and board
  Within the festive louse.

Oh, we must know the facts, my boys,
  We'll surely feel remorse,
If we don't study hard in this
  Bacteriology course.

—Exchange.

ALUMNI

Dr. G. C. Creelman, accompanied by Mrs. Creelman, left Toronto, on March 29th, for Edmonton to visit their daughter, Mrs. N. Curtis. Dr. Creelman is extending his trip to the Pacific coast and will address C. S. T. A. meetings at Fort William, Winnipeg, Regina, Saskatoon, Edmonton, Calgary, Summerland and Vancouver.

The annual meeting of the Quebec Society for the Protection of Plants was held on April 23. Prof. Howitt, of the O. A. C. will deliver an address on "A Review of our present Knowledge on Immunity and Resistance to Disease in Plants."

George Spencer expects to be back about the second week in June to renew the attack on the corn borer.

MARRIAGES

Dodds-Wanless—On Sept. 12, at Knox Presbyterian Church, Alliston, Miss Isobel Wanless was united in marriage to Mr. Ernest H. Dodds, of Orangeville. Rev. J. A. Mathewson, of Mono Mills, officiated.

BIRTHS

Born to Mr. and Mrs. Kenny Forman, at Allahabad, India, on March 3, son, Tom Faulkner. The students of the O. A. C. extend to Mr. and Mrs. Forman their heartiest congratulations.

'95—J. Buchanan, who has been assisting with the Short Course, has gone to Washington to join the Dept. of Exhibitions for a few months.

'05—Harvey Miller, after leaving the the O. A. C. was the supervisor of the seed laboratory of the Albert Dickinson Seed Co., of Chicago. He has resigned that position to become manager of the Funk Bros. Seed Co., of Bloomington, Ill.

'09—W. D. Jackson has been appointed secretary and manager of the Guelph Winter Fair. He is succeeded in his former position as assistant director of the Agricultural Representatives' Branch by J. A. Carroll, '14, who has been Agricultural Representative in Peel County since his graduation.

'10—F. C. Munnick, Director of Publicity at the Central Experimental Farm, Ottawa, and E. R. Rhodes (Macdonald, '12) assistant Chief of the Poultry Division, have left for England in charge of the exhibits to be shown at the British Empire Exposition.

'11—"Ding" Gordon was a visitor at the College recently. He is in the bond business.

'12—T. O. Clark is farming at Edmonton, and is acting as temporary seed, feed and fertilizer inspector under the Dominion Seed Branch.

'12—E. A. Weir has been appointed Superintendent of Intelligence and Publicity for the Canadian National Railways, at London, England. He was formerly manager and chairman of the Board of Directors, of the Province of Manitoba Savings Bank.

'14—C. A. Good is now farming at Lawrence Town, Annapolis County, N. S. After leaving the College Mr. Good was with the Dept. of Entomology at Truro and later with the Soldier Settlement Board.

'15—F. C. Paterson is operating a large cattle and sheep ranch near Powasso, in Northern Ontario. For four years after graduation he was Agricultural Representative in Muskoka, but since 1920 has been in Port Hope.

'15—G. S. Parren has been appointed Professor of Agriculture of Victoria University, Wellington, New Zealand.

'18—R. C. Elder is now teaching Agriculture and Science in the Stamford High School, Niagara Falls, Ont.

'19—R. A. Brink is acting chairman of the Dept. of Genetics, University of Wisconsin, Madison, during the absence of Prof. L. J. Cole, who is on leave for a year in Washington, D.C. Dr. Brink is a post graduate of the University of Illinois (M. S. 1921), and Harvard University (D. Sc. 1923), and has been in charge of Plant Genetics at Wisconsin since September, 1922.

'23—"Les" Gray is going back to farm in Weyburn, Sask.

'23—F. B. Hutt has been appointed lecturer in poultry at the Manitoba Agricultural College.

J. A. Hall, who is Junior Entomologist at Vineland, recently sent in a very interesting letter. He conveys the news that Stanley Morrison, of '21, is principal of a three-room school at Cadillac, Sask.; also that L. M. Ogilvie, '21, is District Representative at the same place.

* * *

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Delightful Varieties

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Page the Prof.!

The fourth year holding a quiz in the chemistry of insecticides and fungicidis and George Wishart inquired of the assembly whether they were responsible for the spray calendar.

Bob Keegan answered him by asking if George was not familiar with the 21st verse of the 22nd chapter of St. Matthew's Gospel.

George confessed his ignorance and so Bob started to quote, "Render unto Caesar what is Caesar's."

Poultry Pointers

The other day Jack Fraser decided that he had yet something to learn about poultry. The conviction came from an unexpected quarter. Imagine our stalwart being instructed by a—woman.

It happened thus: Several Jeunesse breezed into the incubator room where Jack was trimming lamps and doing the thousand and one little tricks that make poultry keeping interesting.

The visitors seemed deeply absorbed watching closely the adjustments. After a moment one inquired the number of eggs that the incubator would hold.

"220," says Jack.

"Oh, that will be leghorn eggs, it wouldn't hold that many eggs from larger breeds," came the startling information, and Jack blinked.

"I'm afraid you're wrong, madam. There is little difference in the size of the eggs of different breeds," he corrected in his most genial manner.

"Oh, I don't think so!" was the gentle reproof, and this time Jack succumbed —what's the use!!

Mr. McConkey—"Is that the way you've been thinking lately?"

Donaldson—"Well, I haven't been doing much thinking lately. I've been writing my thesis.

A Good Defence

FREQUENTLY during a game it is the defence man who saves his team at a critical moment.

A strong defence gives confidence to the team.

Is this not true in life also—a Bank Account is the best defence to have, it inspires confidence and is always there should things go wrong.

SAVE YOUR DOLLARS
EVERY ONE COUNTS.

THE ROYAL BANK
OF CANADA

OVERHEARD IN THE WASHROOM

1st Shaver—"This shaving is a deuced nuisance!"

2nd Shaver—"Well, while we're doing this we're not doing anything else."

1st Shaver—"At any rate, it's an opportunity for thought."

2nd Shaver—"Yes. Reflection's a great thing."

BEDMAKING A FINE ART

G. T. Jackson, of Hollywood, Offers Hope to Slothful.

(An extract from "The Daily Movie Howl.")

"Bedmaking is to me the most fascinating pursuit in the world, and the more often I make my bed the more often do I appreciate my youthful training in this art, which in its beauty rivals even the native basket work of the Afghans," declared George T. Jackson, leading man of Jackson Productions, Incorporated, as he folded his pyjamas during an interview at his hotel apartment, 201 Mills Hall.

"You may not credit it," he continued, "but the turning of sheets often hold me spellbound, so wrapped up do I become in my bed,—a thing which under my hands quickly assumes its present appearance so symbolic of rest and oblivion.

"Some regard this monthly event as an irksome chore, but this view of the matter merely indicates a lack of system. I would suggest to all such that they make their beds more often, say once a week. This would be good practise, and I am convinced that efficiency can only be acquired in this work by diligent, careful repetition of the four motions required in the Jackson Method."

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YONGE AND TEMPERANCE
TORONTO

Continued from page 288.

plete separation isn't necessary. A storage temperature of about 40° F. is alright for cormels. Many cover cormels with sand or fine soil during storage.

SEED

The seed pod cracks downwards and seed drops out readily. A dry airy cool room is a splendid place to store the seed. Sacks may be used to hold seed pods and shallow trays for the seed. (1) Some growers sow seed in December under glass, cool at first with a warm temperature later and in spring plant the seedlings outside. Care is necessary in transplanting. (2) Other growers sow in hot beds and shade for a while. As seedlings grow they are hardened. No transplanting is done. (3) The easiest system is to sow outside and for a while shade with litter as hay or straw. In each case the corms are lifted in the fall and cured. No. 2 system is possibly the best.

Sandy loam is the best compost for seed or cormels. Fertilizer is wise to add as growth develops. Some seedlings flower the first season.

SOWING CORMELS

May be handled similar to the seed. The best system perhaps is the hot bed and cooling off later. Many will flower the first year as plants develop cormels. Liquid fertilizer or manure should be given but not before growth is well advanced or spikes are showing.

FLOWERS

The blooms take ordinarily 70-110 days to come along. Varieties vary and conditions make a big difference. In cutting spikes let remain three or more leaves on the plant, that is if the corms are expected to make flowering corms and cormels worth while for the next season. Should spikes be cut close to the ground corms and cormels will not develop. It is wise to cut spikes upwards parallel to a leaf. Frequently spikes need stakes for support. Such should be neat but strong.

If cut flowers are wanted to last long, cut when one or two flowers are partly opened and place in water in the cool and shade prior to packing or using. If a shipment has been received, unpack and treat in the same way. Spikes in receptacles containing water should have the stems diagonally cut a half inch every day and the water changed. Also unsightly flowers pulled and discarded.

Cut flowers to last well should be kept cool although about two hours sunshine is needed every day if possible to produce the best colour.

Husbandry is an art so gentle, so humane, that mistress like, she makes all those who look on her or listen to her voice intelligent of herself at once. Many a lesson does she herself impart, how best to tey conclusions with her. See, for instance, how the vine, making a ladder of the nearest tree, whereon to climb, informs us that it needs support. —Xenophon, The Economist.

For they counte this the moste juste cause of warre, when anye people holdethe a piece of ground void and vacaunt to no good nor profitable use, kepying other from the use and possession of it, the which notwithstanding by the law of nature ought thereof to be nourished and relieved.—Thomas More, Utopia 1515.

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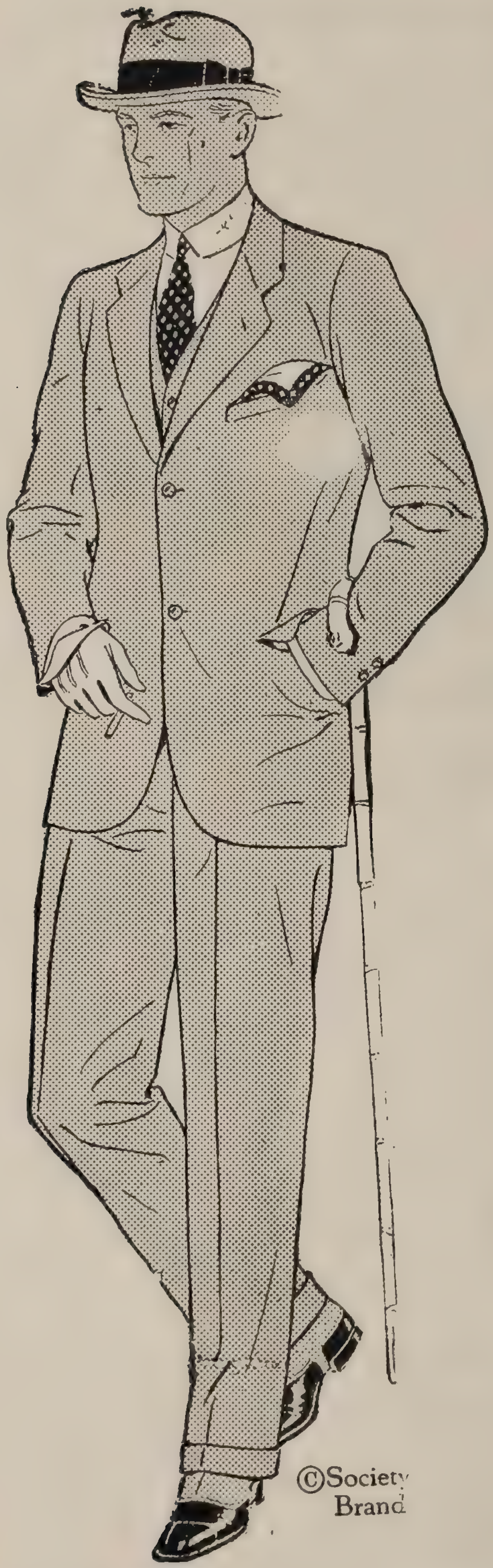

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But he might have gone further and said that also in the Spring all men's fancy turns also to blithsome new clothing.

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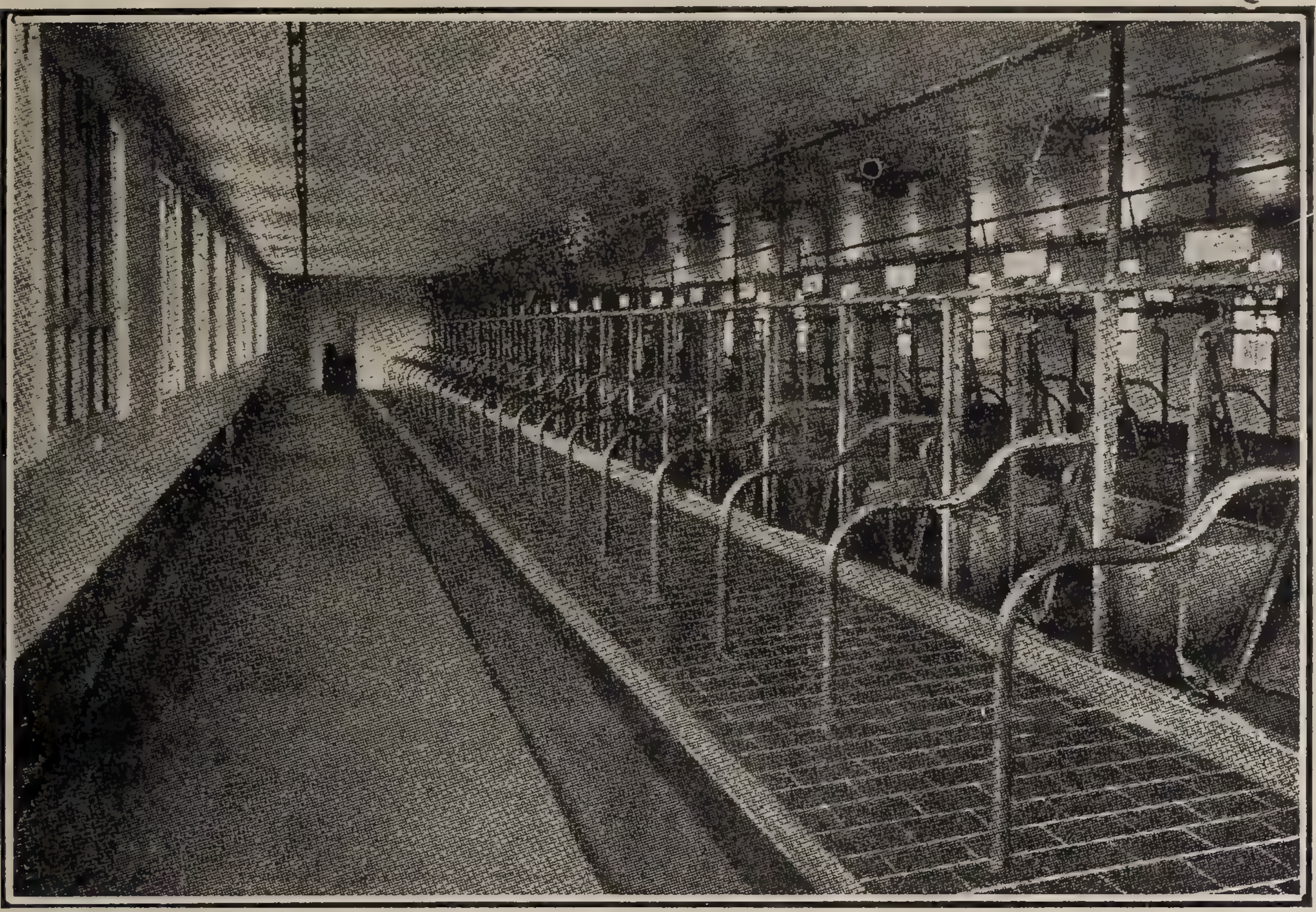

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By George H. Locke

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The Ryerson Press
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Continued from page 283.

It is often desirable to have steel parts that are very hard on the outside but soft and tough in the interior, and this state is secured by "case hardening," The chemical side of this process is simply the addition of carbon to the outer skin of the object. To bring this about the pieces are buried in charcoal or ground bone or some other material rich in carbon placed in containers as in annealing and heated to 1700° F and held at this point long enough to give the desired results. At the expiration of the heating period the pieces are plunged into an oil bath. Upon cooling in the bath they are removed and immediately heated to about 300° F. to preventing cracking.

This carbonizing is sometimes done by the use of chemicals. For example, the bright red hot piece may be coated with potassium cyanide, reheated to bright red again and again cooled in oil or water.

Many other heat treatments are given mild steel to obtain certain specific results but those described above are most commonly used and moreover are capable of being carried out on a small scale with ordinary forge equipment.

THE PRODIGAL

(An utterly moral-less Story)—By Berton Braley.

The Prodigal Son struck the home-going track,
His fortunes were all in a wreck;
His father beheld him come wearily back.
And ran out and fell on his neck.
He slaughtered the calf that was tender and fat,
And all of the neighborhood learned,
By feasting and dancing and merriment, that
The Prodigal Son had returned.

Said the Prodigal Son, "I have wandered in truth
Afar from the ways that are straight,
With all of the folly and ardor of youth
I've lived at a terrible rate.
I've gambled and rambled and played with the vamps,
The way I've behaved is a crime,
But, father, although I've been one of the scamps
I've sure had a wonderful time!"

The Prodigal's father then drew him aside,
And whispered deep under his breath,
"Your brother, my son, is my boast and my pride,
But oh, he just bores me to death!
It sure was delightful to have you appear
Exactly the way that you did,
So tell me the story I'm waiting to hear
Yes, spill it, I'm listening, Kid!"

The Prodigal told of his prodigal ways,
And his ancestor nodded his head.
"Reminds me a lot of my own salad days,
You sowed a mean wild-oat," he said;
"I'm glad you are home, and far be it from me
To tempt you to anything wrong,
But should you grow restless—next time you break free
I hope you will take me along!"

—Trinity University Review.

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Toronto, December, 1921.

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